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AUTHOR	Ritz, John M.
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ABSTRACT

Included in this field tested instructional package are definitions of the terms industry, technology, industrial education, and industrial arts education. Defining behavioral objectives, the course description includes a basic information section, suggested classroom activities, and sample student evaluation forms. The total process of providing goods and services is analyzed in relationship to the 11 elements of industry: (1) research and development, (2) production, (3) marketing and distribution, (4) maintenance and services, (5) finance, (6) manpower, (7) materials, (8) power and energy, (9) property, (10) management, and (11) communications. Graphic representations of how industry relates to society and education are included. (Author/MW)

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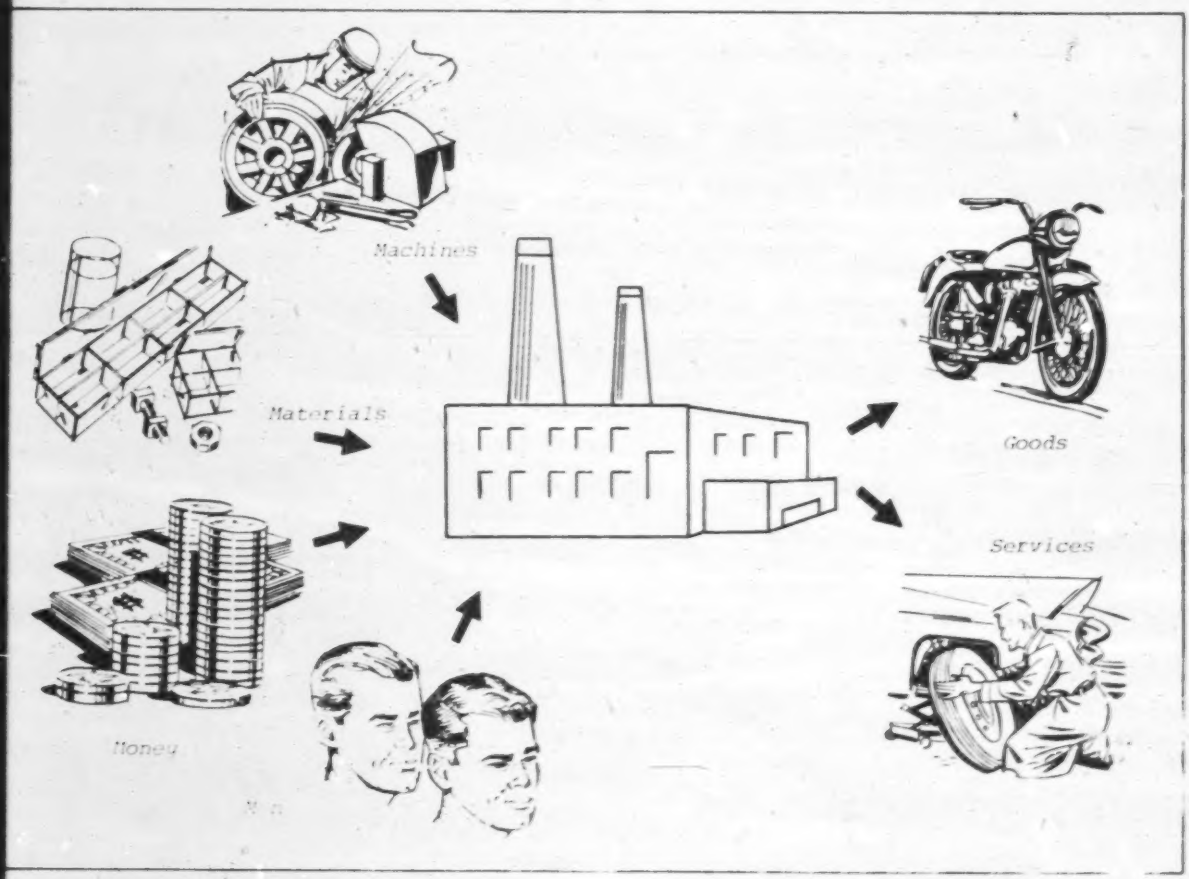
OVERVIEW OF INDUSTRIAL EDUCATION



Prepared as an Aid in Implementing
The Wisconsin Guide to Local Curriculum
Improvement in Industrial Education, K-12

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Learning Activity Package

Prepared as an Aid in Implementing
The Wisconsin Guide to Local Curriculum
Improvement in Industrial Education, K-12

An Overview of Industrial Education

Junior-Middle High School

Pertaining to the Rationale of the Guide

"To understand the educational and societal setting
which your industrial arts instruction is found."

Produced by

The Industrial Education Instructional
Materials Development Project
University of Wisconsin-Stout
Menomonie, Wisconsin

Project Director:

Lawrence S. Wright, Ed.D.

Assistant Director:

M. James Bensen, Ed.D.

Project Coordinator:

John M. Ritz, M.S.

Contributor to this Package:

John Ritz

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University of Wisconsin-Stout

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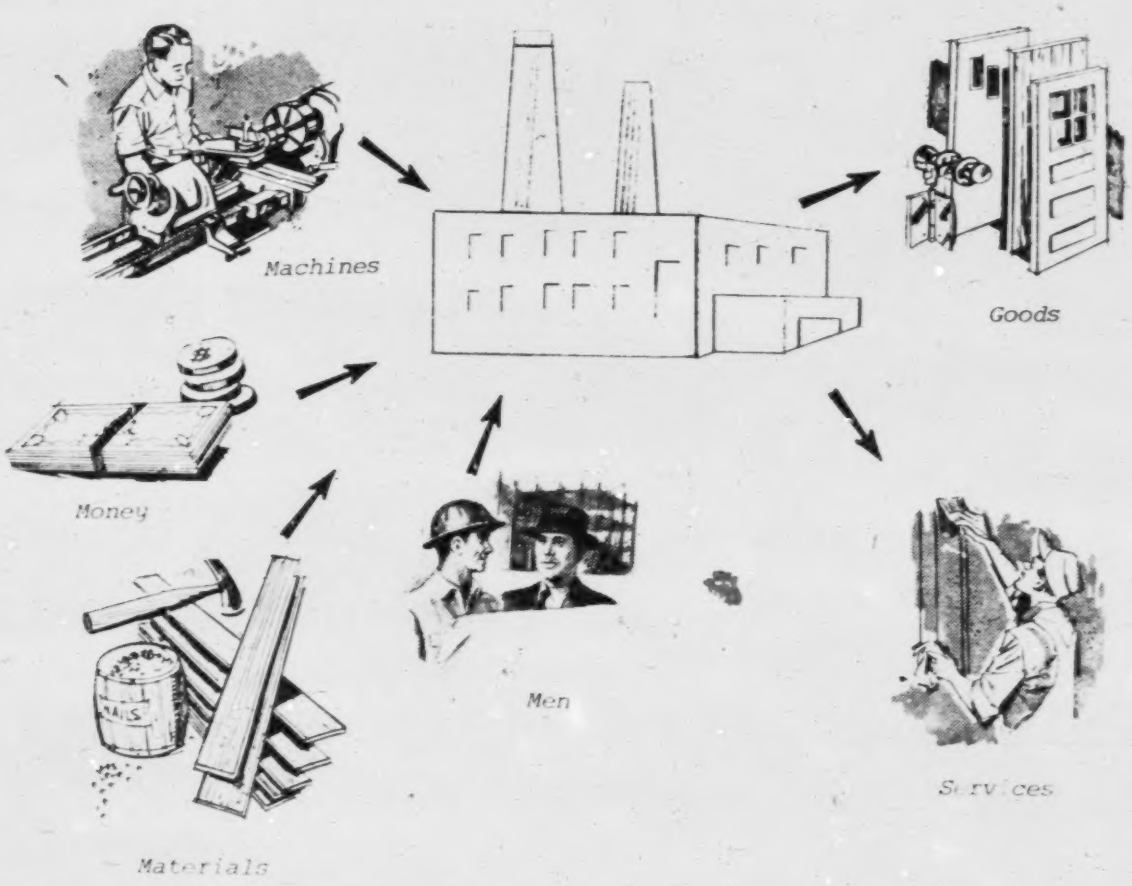
RATIONALE:

Since you are presently enrolled in industrial arts, it is felt that you should understand the "whats" and "whys" of this subject. Some of you may have previously taken industrial arts courses or this may be your first experience in this type of study. The purpose of this instructional package is to familiarize you with the terms and ideas upon which industrial arts is based. By beginning your study at this point, you may develop a better understanding of industry and how you will some day be an important member of our industrial society.



Please turn to the next page and read the objectives carefully!!

OBJECTIVES

Terminal Objective:

To understand the educational and societal settings which your industrial arts education instruction is found.

Enabling Objectives:

At the conclusion of this lesson, you will:

1. Define the following terms either orally or in writing:
   a. Industry
   b. Technology
   c. Industrial Education
   d. Industrial Arts Education
2. Either orally or in writing list and explain the eleven elements which all industries have at their base.
3. Develop an understanding of how the eleven elements of industry fit together in producing goods and services to meet the needs of man.
4. Construct a model of your views of how industry fits into society and education.

Options: Read the self-test on the following pages and then check the following selections that apply to you.

_____ If you feel you can meet the above objectives:

_____ A. See the instructor for a teacher evaluation.

_____ B. Take the self-test as a self evaluating device, then see your instructor.

_____ If you feel you cannot meet the above objectives:

_____ A. Take the self-test to see what objectives your studying should be based upon, then turn to the media section on page 5.

_____ B. Skip the self-test and turn to the media section on page 5 to help you achieve the objectives.

SELF-TEST: You may write in this booklet.

1. What do each of the following terms mean?

   a. Industry -

   b. Technology -

   c. Industrial Education -

   d. Industrial Arts Education -

2. What are the eleven elements of which an industry is comprised. Briefly explain each.

   1.

   2.

   3.

   4.

   5.

   6.

   7.

   8.

   9.

   10.

   11.

3. In your own words, explain how the eleven elements of industry tie together to produce goods and services to meet the needs of man.

4. On this page, sketch the ideas of a model of your view of how industry fits into education and society.

MEDIA SECTION:

In completing this package, read the information section starting on page 6 . There are no other sources readily available for obtaining this information. Complete all the activities located near the end of this package. Answers to many of these questions may be located in the information section.

If the American Industry movie is available in your school, you may also wish to view this. It will broaden your understanding of the term "industry."

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Definition of Terms:

It is essential that you understand what the study of industry and industrial arts is all about before you proceed in learning about specific processes in producing goods and services. To do this it would be helpful if you discovered the meaning of a few of its major terms. The terms that shall be studied in this section are the following - industry, technology, industrial education and industrial arts. Though various sources and programs may give different meanings to the terms, this section presents the term in a context which the author feels most people will accept.

*Industry. "It is an institution within society that develops and uses technology in conjunction with human and natural resources to develop, produce, distribute and service something of value." Most industries in our society exist for the profit motives. The profit motive system affects the economic condition and the standard of living within our society. Industry is one of the institutions developed by man to aid in solving his problems and meeting his material needs. Its influence on man, his environment, his modes of living and even his values is wide-ranging and often unknown. It is likely that few fully realize the impact of industry on human beings -- impacts both positive and negative.

America's standard of living is high. Our homes, transportation

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*(From The Guide)

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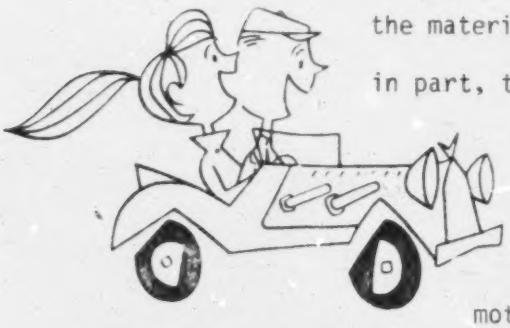
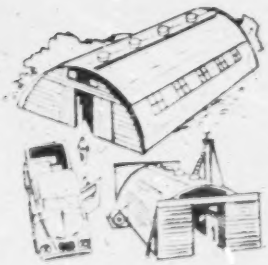
systems, shopping centers, recreation facilities and other aspects of the material culture of America are provided at least in part, through industry. Industrial development has made our country a comfortable place in which to live. Certainly a major force in this development has been the profit motive; it is important for society that profits are related to providing better service to human beings.



Industry is such a potent force in our society that it is important for all citizens to understand it. Therefore, it is essential to provide for its study.

Technology. This is a term that has taken on various meanings. If you look in your standard dictionary, you will probably read that technology is that branch of knowledge that deals with the industrial arts or the science of industrial arts. Many feel that this definition is meaningless and incomplete. Today technology still holds various meanings. Basically it is a term located somewhere between pure science and material practice. Technology can therefore be defined as "the science of application of knowledge to practical things." It includes the study of the change in natural resources to be used by man. Industry is an institution which uses technologies to change materials in producing goods and services.



Industrial Education. "It is that segment of education which obtains its materials to be studied from the things that industry does. It should provide a complete understanding of how industry operates as well as the development of skills related to various elements

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of industry." A comprehensive program of industrial education will involve study of the total institution of industry. Properly conceived, such a program will deal with all the elements which make up industry and the ways in which they interact. Consideration of the impacts of industry on man and society will be important. Industrial education also provides students the opportunity to develop comptencies for entry into the world of work.

To further understand what is studied in industrial education, we should break this segment of education into three appropriate areas: vocational education, technical education, and industrial arts education.

Vocational and technical education deal with the development of job skills and knowledge. Both of these areas are specialized and should not be offered or required for all students. They should only be studied by those who have a particular interest in these particular areas. A student would enter these areas with a vocation in mind and after completion of his studies, he would be ready to work in his selected vocation (job).

Industrial Arts Education. This is the third area of industrial education and the area you are presently studying. Industrial arts education is a program which, "provides opportunities for students to study all segments of industry and to explore how they are related, to see and experience totality of modern industry and develop an understanding of this part of our society and what it implies." This differs from vocational and technical education, in that it studies the basics

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of all segments of industry instead of one segment of a single industry to develop skills. From this you can see that industrial arts is considered general education since it studies all segments of industry (not particular skills and knowledges).

Elements of Industry:

In order for any industry to exist and function, it must have a working basis. Industry is established on a basis of elements. Following will be a list of the elements of industry and a brief description of each element.

Research and Development - Investigation and experimentation conducted for the purpose of arriving at a solution to an identifiable need.

Production - The methods and processes used in the output of goods and services.

Marketing and Distribution - Flow of goods and services from producers to consumers.

Maintenance and Services - Servicing property, equipment and people.

Finance - Acquisition and utilization of financial resources in industry.

Manpower - Human resources (workers) essential to industry.

Materials - Substances from which products are produced.

Power and Energy - The fundamental ingredient in all mechanization and technological development which may be transformed into work.

Property - Holdings or possessions of an enterprise upon which value can be placed.

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Management - Operational activities which provide for the leadership of an enterprise.

Communications - Interaction resulting in the exchange of ideas and information.

Fitting the Elements Together:

In order to be an industry, an organization must produce goods and services to meet the needs of man. For an industry to produce goods and services, certain things are needed. These things are the elements of industry. Following is an example to show how all elements are needed and fitted together in producing goods and services.

Let's take the example of a company that makes yo-yos, and follow it through production. The company must conduct research and development to see what style of yo-yo will sell and how it will be made. It must use production to obtain the methods and processes to make the yo-yo.

After the yo-yo is produced, the company must market and distribute the yo-yo to the public in order to make money. While the firm is producing the product, it must maintain and service the equipment in the company.

In order to start making the yo-yo, the company required certain resources. These are finance, manpower, materials, power and energy, and property. The company must have property (buildings, machines, raw materials, etc.) in order to produce yo-yos. They must have finance (money and stocks) to buy property, materials, and pay employees. Manpower is required to supervise and produce the product. Materials are required to make the yo-yos. This could be wood, plastic,

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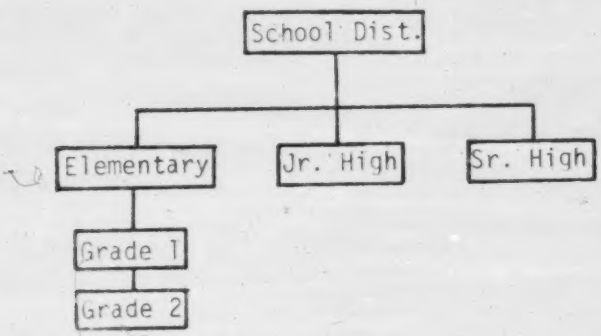
metal, etc. The fundamental ingredient in the production of the yo-yo is power and energy. This element runs the machines, equipment and people to produce the yo-yos.

However, in order for all of these elements to do their jobs, the yo-yo company must have two more elements. These are management and communications. The company needs management to provide leadership to get the goods produced; and it requires communications to exchange ideas and information within the company to get the yo-yos produced.

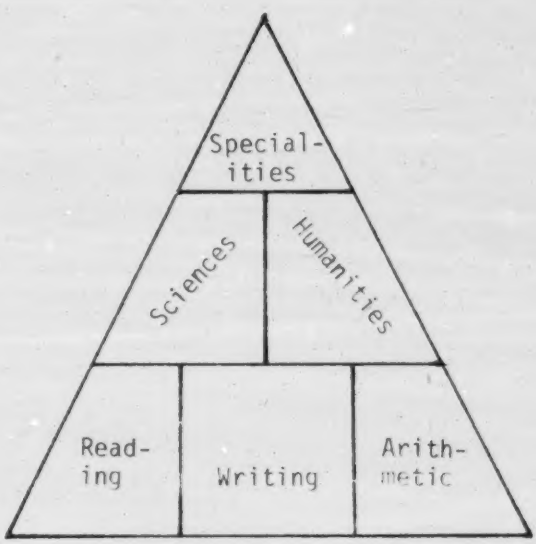
So you can see, if any of these elements are missing from the company, production will stop and the yo-yos will not get produced. Try removing one and see what will happen.

Making a Model

Models (graphical representations) are drawn to visually represent ideas. They can be of various shapes and sizes. They should help explain your thoughts through the use of pictures. Following are examples of models:



Model of School System



Model of Education

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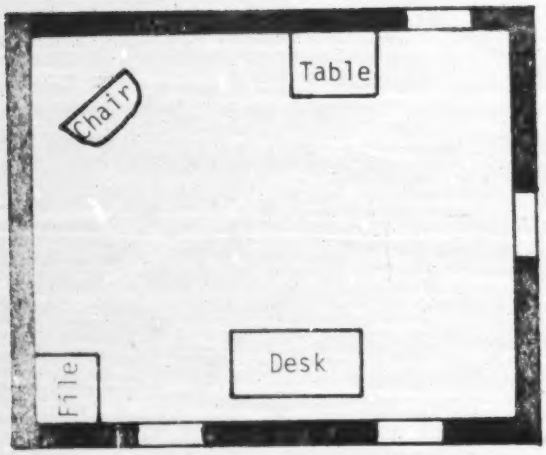
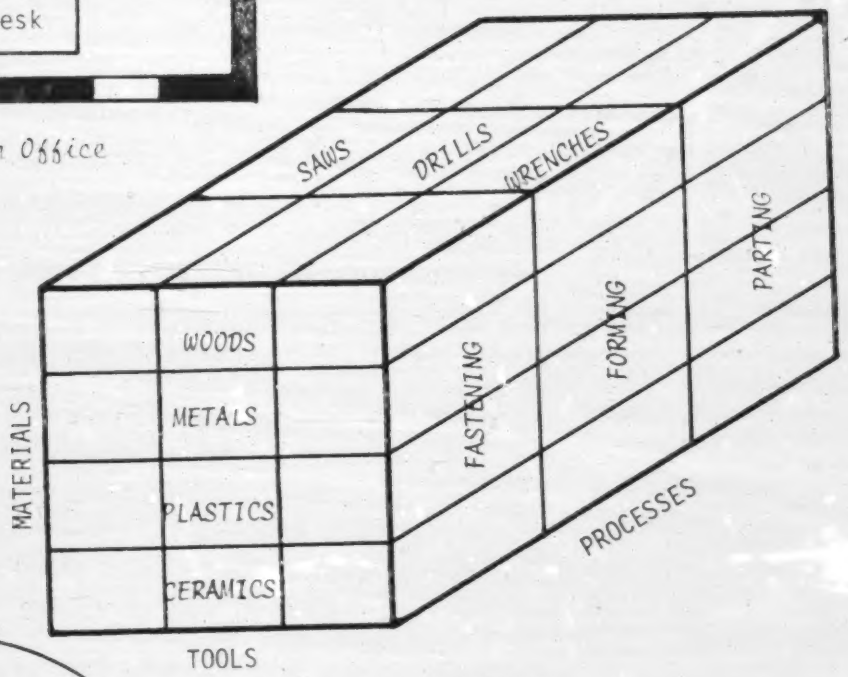
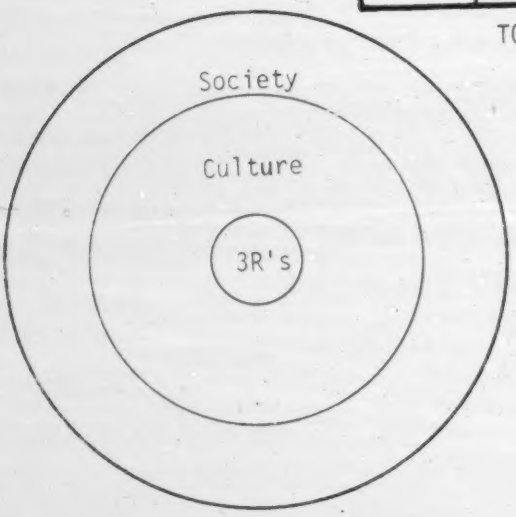


Model of an Office



Model of Industrial Arts



MODEL OF EDUCATION

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These are only a few examples of how models can be constructed. They can also be made three dimensional, using other materials besides pencil and paper. Now turn to Activity 4 and make your model of your views of how industry fits into society and education. No answers are wrong, but a poor model may need to be improved.

Activity: Introduction - I-1 Name _____

Period _____

Directions: Using the literature found in the information section of this package, define the following terms.

1. Industry -

2. Technology -

3. Industrial Education -

4. Industrial Arts Education -

Activity: Introduction - I - 2 Name _____

Period _____

Directions: List and briefly explain the eleven elements on which all industries have their base.

Activity: Introduction - I - 3 Name _____

Period _____

Directions: In your own words, explain your ideas of how the eleven elements of industry fit together in producing goods and services to meet the needs of man.

Activity: Introduction - I - 4

Name _____

Period _____

Directions: Using laboratory materials and equipment (paper, wood, metal, plastic, clay, cardboard, etc.) or paper and pencil, design and develop a model of your views of how industry fits into education and society.

Student Evaluation

Overview of Industrial Education

Name _____

Instructor _____

School _____

Directions: Answer all of the following questions to the best of your ability. The questions are written to evaluate your knowledge and understanding of the area of industrial arts covered in this package. Choose the answer which best completes the statement.

1. _____ is the area of study which provides opportunities for students to learn about all segments of industry.

   a. Industry
   b. Technology
   c. Industrial Education
   d. Industrial Arts Education

2. The term that is located somewhere between pure science and material practice is referred to as:

   a. Industry
   b. Technology
   c. Industrial Education
   d. Industrial Arts Education

3. An institution within society that develops and uses technology in conjunction with human and natural resources to develop, produce, distribute, and service something of value is:

   a. Industry
   b. Technology
   c. Industrial Education
   d. Industrial Arts Education

4. That segment of education which obtains its materials to be studied from the things that industry does is:

   a. Industry
   b. Technology
   c. Industrial Education
   d. Industrial Arts Education

5. Holdings or possessions of an enterprise upon which value can be placed are called:

   a. Materials
   b. Finance
   c. Property
   d. Management

6. Human resources essential to industry are called:

   a. Management
   b. Manpower
   c. Marketing
   d. Energy

7. The flow of goods and services from producer to consumer is called:

   a. Research
   b. Development
   c. Research and Development
   d. Marketing and Distribution

8. The fundamental ingredient in all mechanization and technological development which may be transformed into work is called:

   a. Manpower
   b. Management
   c. Materials
   d. Power and Energy

9. Operational activities which provide for the leadership of an enterprise are called:

   a. Communications
   b. Manpower
   c. Production
   d. Management

10. The methods and processes used in the output of goods and services are referred to as:

    a. Research and Development
    b. Production
    c. Marketing and Distribution
    d. Maintenance and Service